

United States
Department of
Agriculture

Forest
Service

Region 3

517 Gold Avenue, SW
Albuquerque, NM 87102

Reply To: 3420

Date: JAN 14 1986

Subject: 1985 Western Spruce Budworm

To: Forest Supervisor, Lincoln National Forest

During July 1985, Forest Pest Management personnel conducted surveys on the Lincoln National Forest (LNF), Mescalero Apache Indian Reservation (MAIR), and interspersed lands of private ownership to monitor current western spruce budworm (WSBW), Choristoneura occidentalis Free., activity. As requested in your letter of July 17, 1985, areas treated with insecticides during the 1984 WSBW suppression project and untreated areas were surveyed. Surveys included aerial sketch-mapping to delineate extent of 1985 defoliation and WSBW egg mass collections which are used to predict 1986 defoliation trends. Egg mass collections were made on the Mescalero, Cloudcroft, Alamo, Sacramento, and White Mountain Analysis Units. Locations of aerially detected defoliation and egg mass sample plots are shown in Figures 1 and 2 (attached).

The purpose of this letter is to summarize the results of these surveys and to present recommendations for WSBW management. Survey results are summarized by analysis units (established during the environmental assessment of WSBW on the LNF, MAIR, and associated State and private lands, 1983) in the enclosed Tables 1 and 2.

Mescalero, Cloudcroft, Alamo, and Sacramento Analysis Units. Most of the host type (240,900 acres) within these four units was treated with an aerial insecticide application in late May and early June 1984. Aerial sketch-map surveys conducted in July 1984, showed total acres defoliated from 1983 to 1984, decreased on the Mescalero unit, but increased on the Cloudcroft, Alamo, and Sacramento analysis units. However, because larval and egg mass densities showed a low residual population density level, it was concluded that the defoliation observed occurred prior to insecticide treatment. In 1985, one year after treatment, no defoliation was detected within these four analysis units. Egg mass samples collected in 1985 from these units averaged 0.4, 0.4, 0.6, and 3.2 egg masses per square meter of foliage, respectively (Table 2). These egg mass results indicate defoliation will be undetectable within these analysis units again in 1986.

White Mountain Analysis Unit. WSBW defoliation on the untreated White Mountain analysis unit, decreased from 4,675 acres in 1984 to 3,600 acres in 1985. Most of the defoliation detected on this unit in 1985 was categorized as moderate (Figure 1). Based on egg mass samples which averaged 8.0 ± 2.8 on this unit in 1985, we predict that the budworm will continue to cause light to moderate defoliation within this analysis unit in 1986.

01/14/86 0858 FPM 3420

Carrizo, Sierra Blanca, Ruidoso, and Capitan Analysis Units. WSBW defoliation in these untreated analysis units decreased substantially in 1985 (Table 1). Total acres defoliated on the Carrizo, Sierra Blanca, and Ruidoso units decreased from 2,325, 6,300, and 700 acres in 1985 to 800, 2,500 and 0 acres, respectively, in 1985. Because most of the host type defoliated within these analysis units are isolated and located primarily in wilderness or in noncommercial timber producing areas, egg mass collections were not conducted in these units in 1985. However, defoliation is expected to continue within these analysis units in 1986. We will continue to monitor the WSBW on these units again in 1986 and will continue to keep you informed of any changes that occur.

Recommendations

We recommend no action be taken to suppress the WSBW on the LNF and MAIR in 1986. WSBW population density levels appear to be near endemic levels within the Mescalero, Cloudcroft, Alamo, and Sacramento analysis units. The remaining analysis units contain isolated infestations located primarily in wilderness or other noncommercial timber producing areas.

Because of the recent WSBW activity observed throughout the mixed conifer type on this Forest, we recommend that the budworm be considered a long-term forest pest management problem and addressed through long-range planning. The recommended approach is silvicultural strategies which reduce stand susceptibility/vulnerability. Although silvicultural manipulations will not prevent future WSBW outbreaks from occurring, nor provide relief from existing outbreaks, overall stand vulnerability will be reduced in the long-term. Silvicultural prescriptions should include, but are not limited to:

1. Intermediate cuttings such as precommercial and thinning and sanitation/salvage where appropriate to increase stand vigor, regulate stocking, and favor nonhost tree species.
2. Regeneration cuttings using clearcutting and shelterwood methods to create a mosaic of evenage stands with a low percentage of white fir.
3. Artificial regeneration with nonhost species such as ponderosa, where appropriate.

In addition to these silvicultural management approaches, high value esthetic and recreation areas (campgrounds and picnic areas) should be identified and threshold budworm damage levels established. Should budworm damage levels reach threshold levels, suppression strategies should be planned and implemented to prevent further damages.

DOUGLAS L. PARKER

DOUGLAS L. PARKER
Director of Forest Pest Management

Enclosures (3)

T.Rogers:dtk:1/8/86

cc:

SIA Albuquerque (w/encl)

4.
IPL

Table 1. Summary and comparison of defoliation as determined by aerial sketch-map surveys in 1983, 1984, and 1985, Lincoln National Forest and Mescalero Apache Indian Reservation.

Analysis Unit	1983	1984	1985
Carrizo	1,850	2,325	800
Capitan	1,200	0	-
White Mountain	6,200	4,675	3,600
Sierra Blanca	11,975	6,300	2,500
Ruidoso	3,625	700	0
Mescalero	44,950	28,775	0
Cloudcroft	1,975	2,300	0
Alamo	21,000	34,375	0
Sacramento	16,025	26,450	0
Total	108,800	105,900	6,900

Table 2. Summary and comparison of 1983, 1984, and 1985 egg mass densities, and predicted defoliation for 1986 by Analysis Unit, Lincoln National Forest and Mescalero Apache Indian Reservation.

Analysis Unit	New Egg Masses per Square Meter of Foliage \pm SE and Number of Plots			Predicted Defoliation for 1986
	1983	1984	1985	
Carrizo	No Data Collected	No Data Collected	No Data Collected	Undetermined
Capitan	No Data Collected	No Data Collected	No Data Collected	Undetermined
White Mountain	$82.2 \pm 41.2n = 4$	$8.6 \pm 4.2n = 2$	$8.0 \pm 2.8n = 10$	Moderate
Sierra Blanca	$45.6 \pm 9.9n = 10$	$44.3 - n = 1$	No Data Collected	Undetermined
Ruidoso	No Data Collected	$1.0 \pm 1.0n = 2$	No Data Collected	Undetermined
Mescalero	$37.6 \pm 10.7n = 16$	$1.1 \pm 0.5n = 73$	$0.4 \pm 0.2n = 18$	Undetectable
Cloudcroft	$49.2 \pm 7.2n = 10$	$.7 \pm 0.7n = 3$	$0.4 \pm 0.4n = 5$	Undetectable
Alamo	$59.0 \pm 12.3n = 10$	$.5 \pm 0.2n = 76$	$0.6 \pm 0.4n = 19$	Undetectable
Sacramento	$46.0 \pm 8.7n = 6$	$.9 \pm 0.4n = 48$	$3.2 \pm 1.9n = 11$	Undetectable To Light

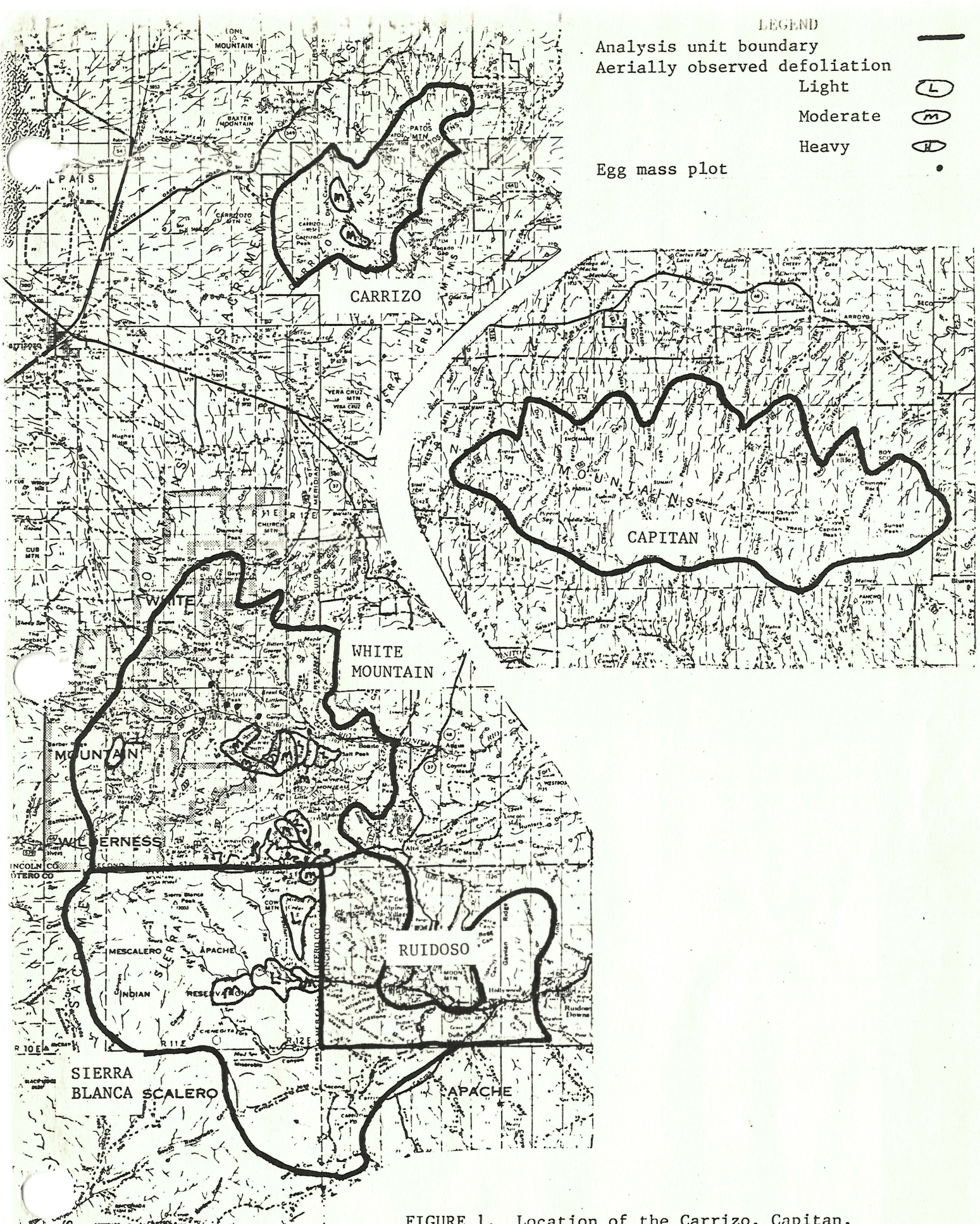


FIGURE 1. Location of the Carrizo, Capitan, White Mountain, Sierra Blanca, and Ruidoso Analysis Units; 1985 aerially observed defoliation; and 1985 egg mass plots.

LEGEND

Analysis unit boundary

Aerially observed defoliation

Light

Moderate

Heavy

mass plot

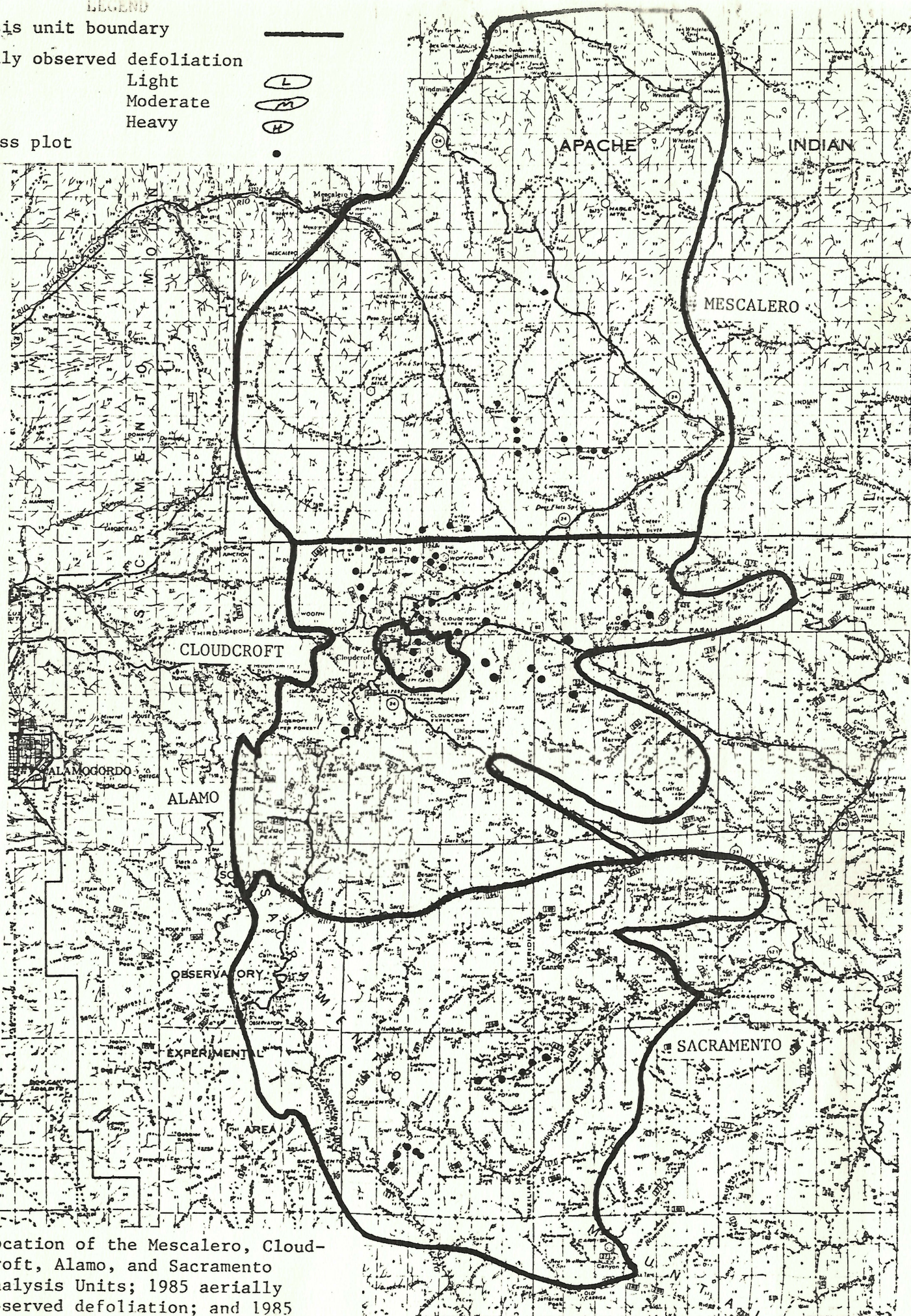


FIGURE 2. Location of the Mescalero, Cloud-croft, Alamo, and Sacramento Analysis Units; 1985 aerially observed defoliation; and 1985 egg mass plots